

CLAIMS

WHAT IS CLAIMED IS:

1. An automated imaging system for scanning breast tissue during a medical imaging process, said system comprising:

a compression paddle arranged to apply a compression load to breast tissue being scanned during said medical imaging process; and

a probe interface assembly comprising:

a platform including an inner frame for supporting an ultrasound probe in spaced apart relationship relative to the compression paddle, said platform adapted to contactively engage said compression paddle during said medical imaging process, said platform including a first resilient pivot connection at each side of a first set of mutually opposite sides of said inner frame to provide a tilt degree of freedom about a first axis, said platform further including a second resilient pivot connection at each side of a second set of mutually opposite sides of said inner frame to provide a tilt degree of freedom about a second axis positioned orthogonal relative to said first axis, said first and second connections allowing a face of said probe to remain parallel relative to the compression paddle notwithstanding of deformation of the compression paddle that may occur when said compression paddle applies the compression load to the tissue being scanned.

2. The imaging system of claim 1 wherein said platform is coupled to a rotatable frame configured to provide a rotational degree of freedom to the platform about a third axis perpendicular to said first and second axes.

3. The imaging system of claim 2 wherein said platform is coupled to a suspension device configured to provide a translation degree freedom to said platform along said third axis.

4. The imaging system of claim 1 further comprising a tilt sensor arranged to measure a respective degree of tilt of the platform relative to said first and second axes.

5. The imaging system of claim 1 wherein said platform includes a first aperture for receiving a clamp adapted to block the tilt degree of freedom about said first axis.

6. The imaging system of claim 1 wherein said platform further includes a second aperture for receiving a clamp adapted to block the tilt degree of freedom about said second axis.

7. The imaging system of claim 1 comprising in combination an X-ray mammography system and an ultrasound imaging system.

8. A probe interface assembly for an automated medical imaging system, said assembly comprising:

a platform including an inner frame for supporting an ultrasound probe in spaced apart relationship relative to a compression paddle arranged to apply a compression load to breast tissue being scanned during a medical imaging process, said platform adapted to contactively engage said compression paddle during said medical imaging process, said platform including a first resilient pivot connection at each side of a first set of mutually opposite sides of said inner frame to provide a tilt degree of freedom about a first axis, said platform further including a second resilient pivot connection at each side of a second set of mutually opposite sides of said inner frame to provide a tilt degree of freedom about a second axis positioned orthogonal relative to said first axis, said first and second connections allowing a face of said probe to remain parallel relative to the compression paddle notwithstanding of deformation of the compression paddle that may occur when said compression paddle applies the compression load to the tissue being scanned.

9. The probe interface assembly of claim 8 wherein said platform is coupled to a rotatable frame configured to provide a rotational degree of freedom to the platform about a third axis perpendicular to said first and second axes.

10. The probe interface assembly of claim 9 wherein said platform is coupled to a suspension device configured to provide a translation degree freedom to said platform along said third axis.

11. The probe interface assembly of claim 8 further comprising a tilt sensor arranged to measure a respective degree of tilt of the platform relative to said first and second axes.

12. The probe interface assembly of claim 8 wherein said platform includes a first aperture for receiving a clamp adapted to lock the tilt degree of freedom about said first axis.

13. The probe interface assembly of claim 8 wherein said platform further includes a second aperture for receiving a clamp adapted to lock the tilt degree of freedom about said second axis.

14. A probe interface assembly for an automated medical imaging system, said assembly comprising:

a platform including an inner frame for supporting an ultrasound probe in spaced apart relationship relative to a compression paddle arranged to apply a compression load to breast tissue being scanned during a medical imaging process, said platform adapted to contactively engage said compression paddle during said medical imaging process, said platform coupled to a rotatable frame configured to provide a rotational degree of freedom to the platform about a longitudinal axis of said probe, wherein said rotational degree of freedom enables alignment between a higher resolution axis of the probe and an expected orientation of structures in the breast tissue to be scanned.

15. A probe interface assembly for an automated medical imaging system, said assembly comprising:

a platform including an inner frame for supporting an ultrasound probe in spaced apart relationship relative to a compression paddle arranged to apply a compression load to breast tissue being scanned during a medical imaging process, said platform adapted to contactively engage said compression paddle during said medical imaging process, said platform coupled to a suspension device configured to provide a translation degree freedom to said platform along a longitudinal axis to accommodate height variation of the compression paddle.